

# Evaluation of sunflower inbred lines resistance to *Macrophomina phaseolina* using different inoculation methods



Nemanja Ćuk

# Introduction

- Casual agent of charcoal rot
- over 500 hosts
- 28-35°C, water deficit
- Climate change impact: extended dry periods and increase of average temperatures
- plant stunting, leaf chlorosis, gray stem coloration, premature ripening,
- Reliable disease evaluation is necessary



# Aims

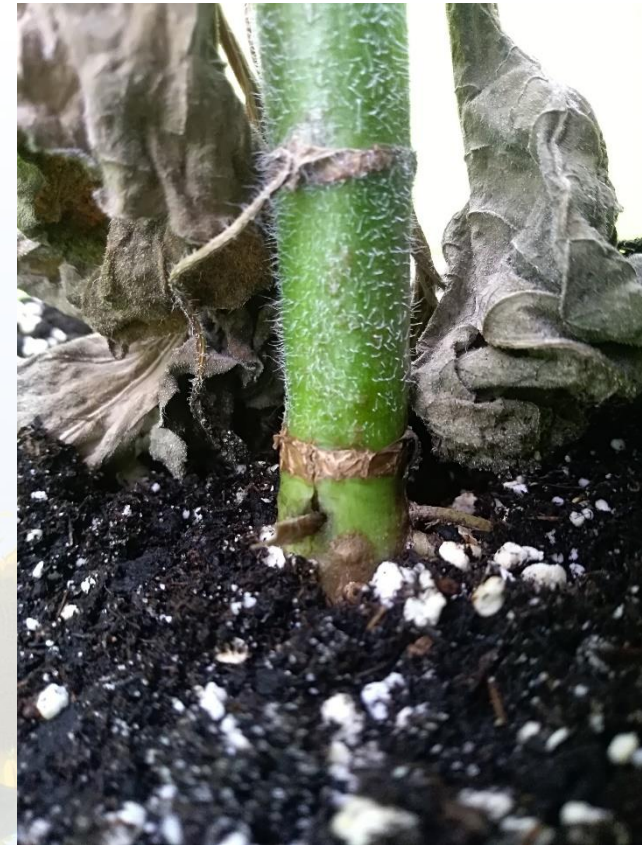
- To compare two inoculation methods of sunflower with *Macrophomina phaseolina* and spontaneous disease occurrence.
- To make selection of sunflower inbred lines that could be source of resistance to charcoal rot.

# Material and method

- 79 sunflower inbred lines
- Inoculation methods: toothpick method and USBI (Unwounded Stem Base Inoculation) and non-inoculated plants



USBI method



Toothpick method

# Results

**Table 1:** Range for disease incidence and disease severity of sunflower inbred lines infected with *Macrophomina phaseolina* infected with two artificial inoculation method and in plants which was not artificial inoculated

	Disease incidence	Disease severity
Toothpick method	0-100%	0-73.49%
USBI method	0-100%	0-54.8%
Non-inoculated plants	0-91.1%	0-45.89%

Resistant inbred lines: L1, HA 74, MA SC 2 and PB 21

# Conclusion

- Toothpick method was the most aggressive method
- Four inbred lines: L1, Ha 74, MA SC 2 and PB 21 had less than 5 % of disease incidence and disease severity in every of inoculation method and these four inbred lines were the most resistant
- Inbred lines and data from this work were help to develop new laboratory method for detection of sunflower resistance to *M. phaseolina*. New method can give results for less than two months in laboratory conditions and obtained results are promising.

Novel evaluation: cut stem method





Thank you for attention

